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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/987,010	11/13/2001	Tetsuyoshi Inoue	204552021700	6384

7590 11/05/2003

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EXAMINER

NGUYEN, TUAN N

ART UNIT PAPER NUMBER

2828

DATE MAILED: 11/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

09/987,010

Applicant(s)

INOUE ET AL.

Examiner

Tuan N Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on July 22, 03.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.


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Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAIL ACTION - FINAL

1. In respond to applicant's amendment filed July 22, 2003, claim 1 has been amended.

Claims 1-5 are pending.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or non-obviousness.

3. Claim 1-5 is rejected under 35 U.S.C. 103(a) as being unpatentable Inaba (US 6255742) in view of Yoshiura Masayasu (JP 08-095504) and Hainz et al. (US 5138428).

With respect to claims 1-5 Inaba '742 shows in (Fig 9a-d: 1,2,19; Fig 11b:20, 7) a semiconductor laser device having semiconductor laser chip mounted on a based portion using electrically conductive die-bond paste (Col 8: 62-67), where thermal resistance of semiconductor

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device is about 30 °C/W (Col 7: TABLE 1). Also, Inaba '742 discloses the amount of die-bond surface of semiconductor laser chip (Col 8: 62-67; Col 0-60). In addition, the claim requires the conductive die-bond paste is silver paste. Yoshiura Masayasu (JP 08-095504) discloses in the DETAILED DESCRIPTION section [0012] light emitting diode device mounted on a base portion by using an electrical conductive die-bond silver paste. For the benefit of using the electrical conductive die-bond silver paste, it would have been obvious to one of ordinary skill in the art to provide Inaba '742 the electrical conductive die-bond silver paste for bonding the two structure together. It is within one skill in the art knowing that as semiconductor chip is pushed onto the die-bond paste toward the base there will be some creep-up from conductive die-bond paste. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Also, it has been held that omission of an element and its function in a combination where the remaining elements perform the same functions as before involves only routine skill in the art. *In re Karlson*, 136 USPQ 184. Since claim 1 recites the same or identical elements/limitations it is inherent to use patents ('742) to recite the method of manufacturing semiconductor laser device, product by process.

Response to Amendment

4. Applicant's arguments filed on July 22, 2003 have been fully considered but they are not persuasive.

With respect to claim 1, the claim reciting a manufacturing method of a semiconductor laser device by mounting the laser chip on a base portion using a metal bond paste and after

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temporary curing, final curing is performed. Inaba and Hainz shows the process of mounting semiconductor on a based portion, while Masayasu discloses the electrically conductive adhesive mode of silver paste, etc., to fixed to electrode with pressure. It is within one skill in the art to decide if the reference is within the field of the inventor's endeavor, else determined whether the reference is reasonably pertinent to the particular problem with which the inventor was involved. In this case the use of metal bond paste between the semiconductor and the base portion for cooling or heat conduction. Furthermore, the claim requires the curing occurs in two steps. It is within one skill in the art to know, after welded or soldered a semiconductor or surface mount semiconductor to a base or circuit, the bond can be cured by two method a) leave it alone until the cure bond is done b) taking the welded or soldered material into a curing room, and curing it at a desire temperature – based on the material property. Hence, the material has been temporary cured, and finally cured as a two steps method. In addition, Hainz et al. US 5138428 discloses the claimed step of finally curing the conductive die-bond paste. It has been held that omission of an function in a combination where the remaining elements perform the same function before involves only routine skill in the art. *In re Karlson*, 136 USPQ 184.

With respect to claim 2, the claim recited “thermal resistance of the semiconductor laser device is **90 °C/W or lower.**” Inaba ‘742 shows the thermal resistance of semiconductor device is about 30 °C/W (Col 7: TABLE 1). Hence, Inaba ‘742 has met the requirement of the claim. In addition, it is within one skill in the art to know that semiconductor device has thermal resistance way above 100°C, therefore having semiconductor thermal resistance or operate below 90°C is nothing new.

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Also, when mounting, welding, or soldering a semiconductor chip such as surface mount – the chip has to be hold in position; the means or tools used to keep the chip in position inherently has pressure (vector force in downward and outward laterally).

Conclusion

5. Applicant's arguments filed on July 22, 2003 have been fully considered but they are not persuasive. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP 706.07. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Communication Information

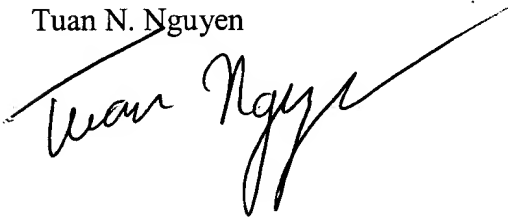

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan N Nguyen whose telephone number is (703) 605-0756. The examiner can normally be reached on M-F: 7:30 - 4:30PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

Tuan N. Nguyen

A handwritten signature in black ink, appearing to read 'Tuan Nguyen', with a long, sweeping horizontal stroke extending to the right.A handwritten signature in black ink, appearing to read 'Paul Ip', written in a cursive style.

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